
“All things are connected. Whatever befalls the earth befalls the sons of the earth. “
Attributed to Chief Seattle

All Lands Approach to Diversity

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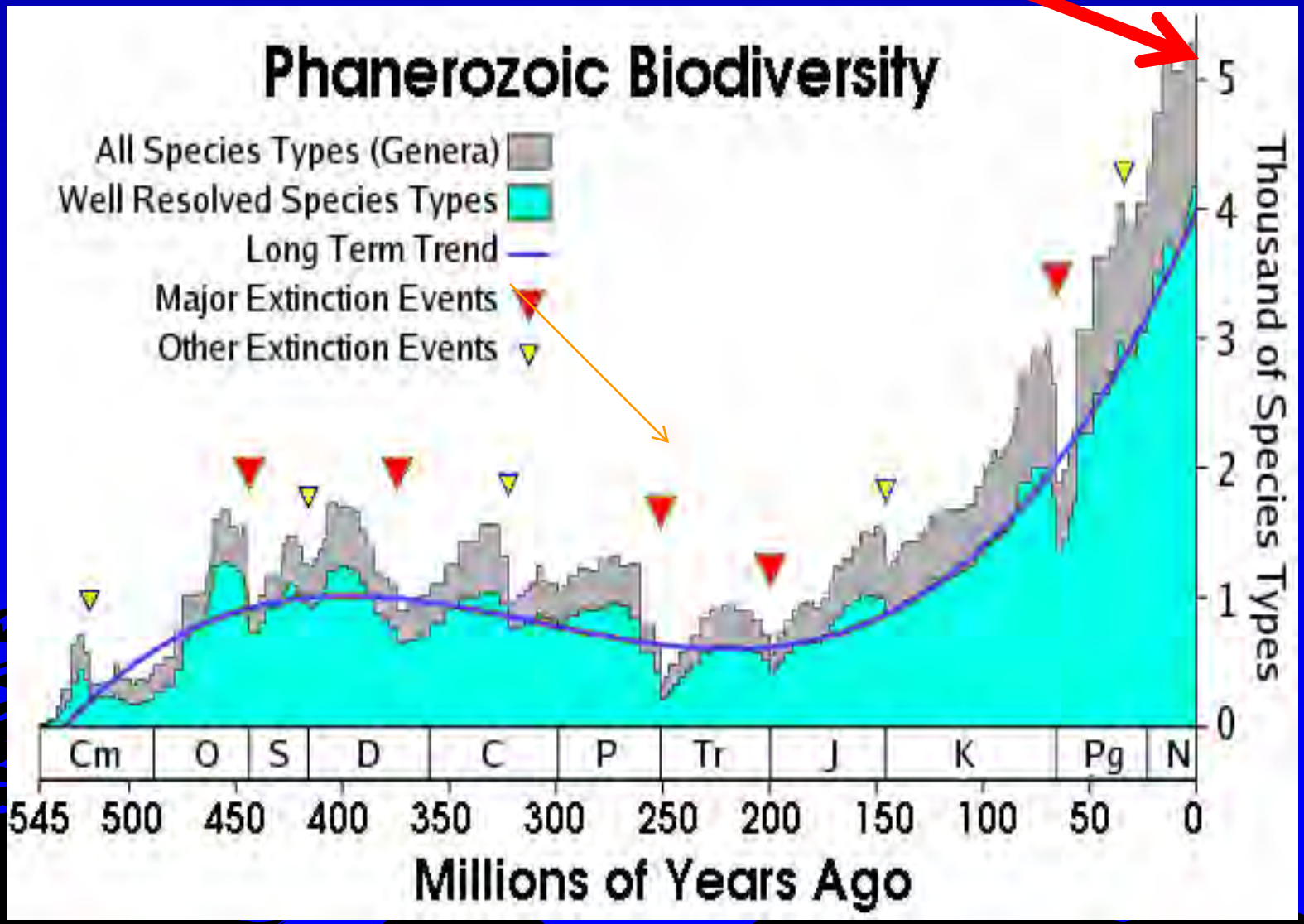
February 2010

What Is Biodiversity?

"The variety of life, at all levels from genes through species and to ecosystems, **and is valued by people and cultures for reasons ranging from the aesthetic to the economic**." UN CBD

- Levels of biodiversity:
  - Molecular
  - Morphological
  - Organismic
  - Population (Genetic)
  - Species
  - Ecosystem

Mankind



There are 10-50 million species in the modern biosphere

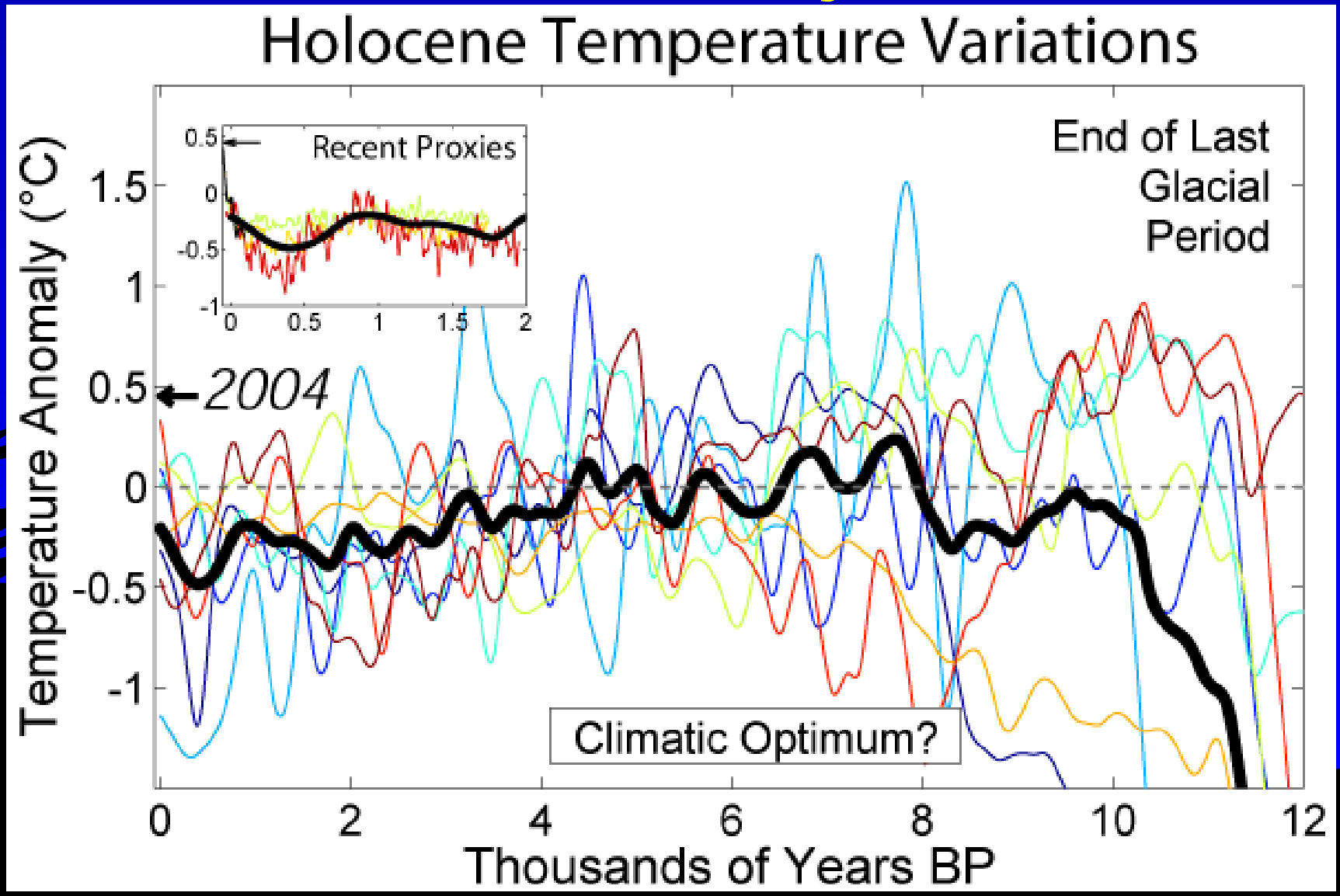
Few species that once existed have not become extinct

Nature is Indifferent

Ecology & evolution are intertwined. Environment is inherently unstable – disturbance, catastrophe, fragmentation, & change are natural and essential to create open ecological space and opportunity for speciation.

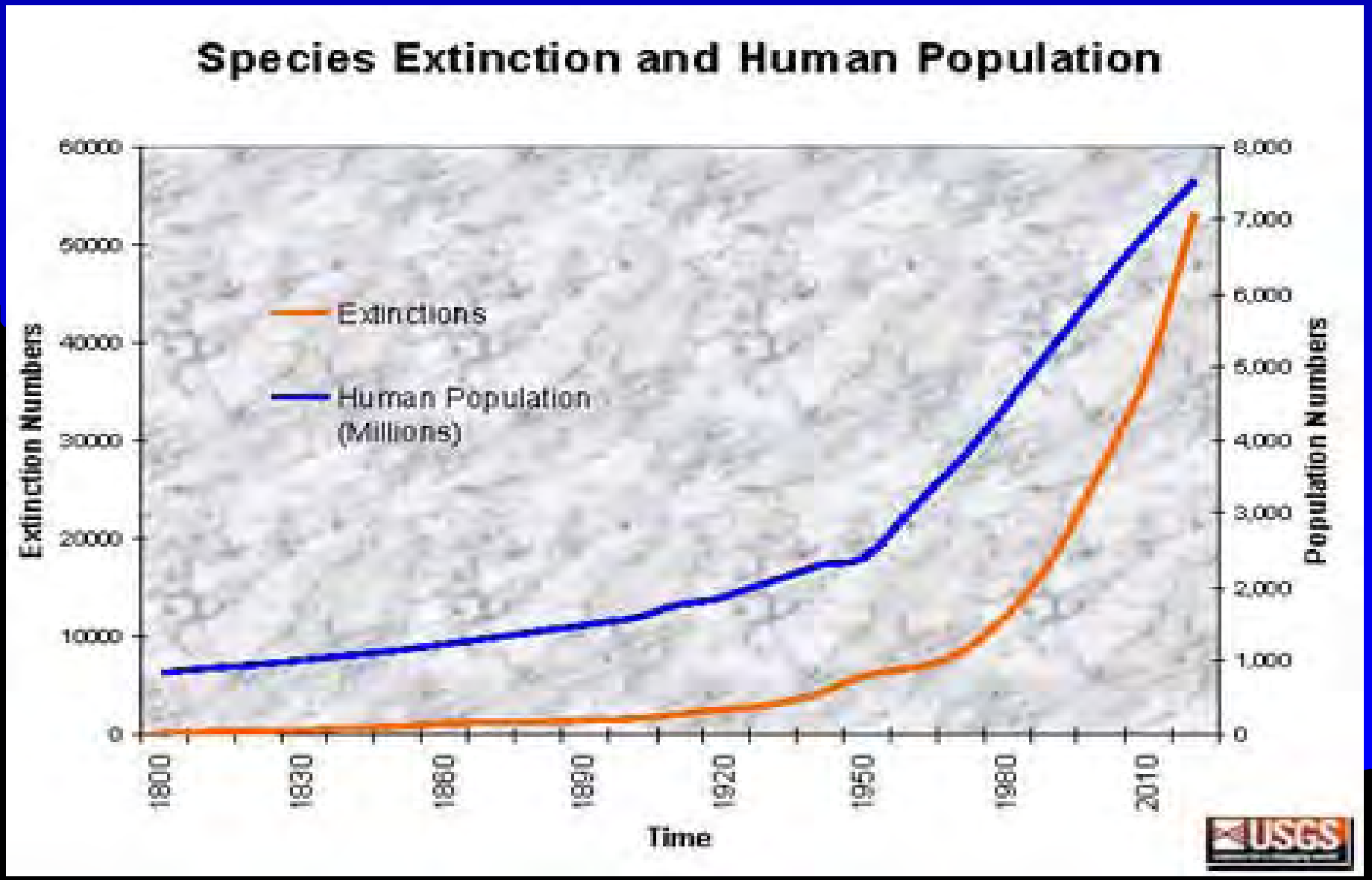
Species adapt or die.

Holocene~12,000 years BP



Holocene

- Relatively stable
- Little evolution
- Major shifts in plant & animal distribution
- **Anthropocene ~300 BP**
  - Industrial era of mechanization


Species Extinction and Human Population
Extinction Numbers
60000
50000
40000
30000
20000
10000
0
Extinctions
Human Population
(Millions)
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Population Numbers
1800
1830
1860
1890
1920
1950
1980
2010
Time
USGS

HIPPO+P -Threats To Diversity

- **H**abitat destruction
- **I**nvasive species
- **P**ollution
- Human **P**opulation Growth
- **O**verharvesting
- **P**oaching

Hippo Dilemma, New Africa books 2005.

Not All Human Influence is Bad

- Some loss may be essential to sustain & improve human welfare & sustain ecological processes.
- Sometimes richness in diversity is due to human modifications of the environment

Why Care?

- **"6th great mass extinction" being caused by man**
  - 50% of species may disappear - extirpation and extinction (UCSB 2008).
  - The rate of species extinction is 100-1000 X the natural background rate (Levin & Levin 2002)
- **Loss threatens ecosystems services**
  - Provisioning (water, food)
  - Regulating (flood & disease control)
  - Cultural (spiritual, aesthetic, recreational)
  - Supporting (nutrient recycling, carbon storage)

We care because of morals, ethics, & values

"We are bankrupting our natural economy. We need to fashion a rescue package before it is too late"
Ban Li-moon

1992 UN Convention on Biodiversity (US not a party)

No targets met in 110 reports submitted on biodiversity loss

- **Forests contain 2/3 of all terrestrial species**
- **Provide more than 1.6 billion people with daily subsistence needs**
  - Livelihoods, Fuel, Foods, Medicines

"Forests are crucial to our global development, they are an integral part of our lives. When we lose forest biodiversity, we lose important economic assets, but perhaps more importantly, we also lose an essential part of our cultural and spiritual heritage. We must act together, in the true spirit of partnership to ensure that all their functions and values are maintained, for present and future generations."

Jan McAlpine, Director UN Forum on Forests

December 15, 2009

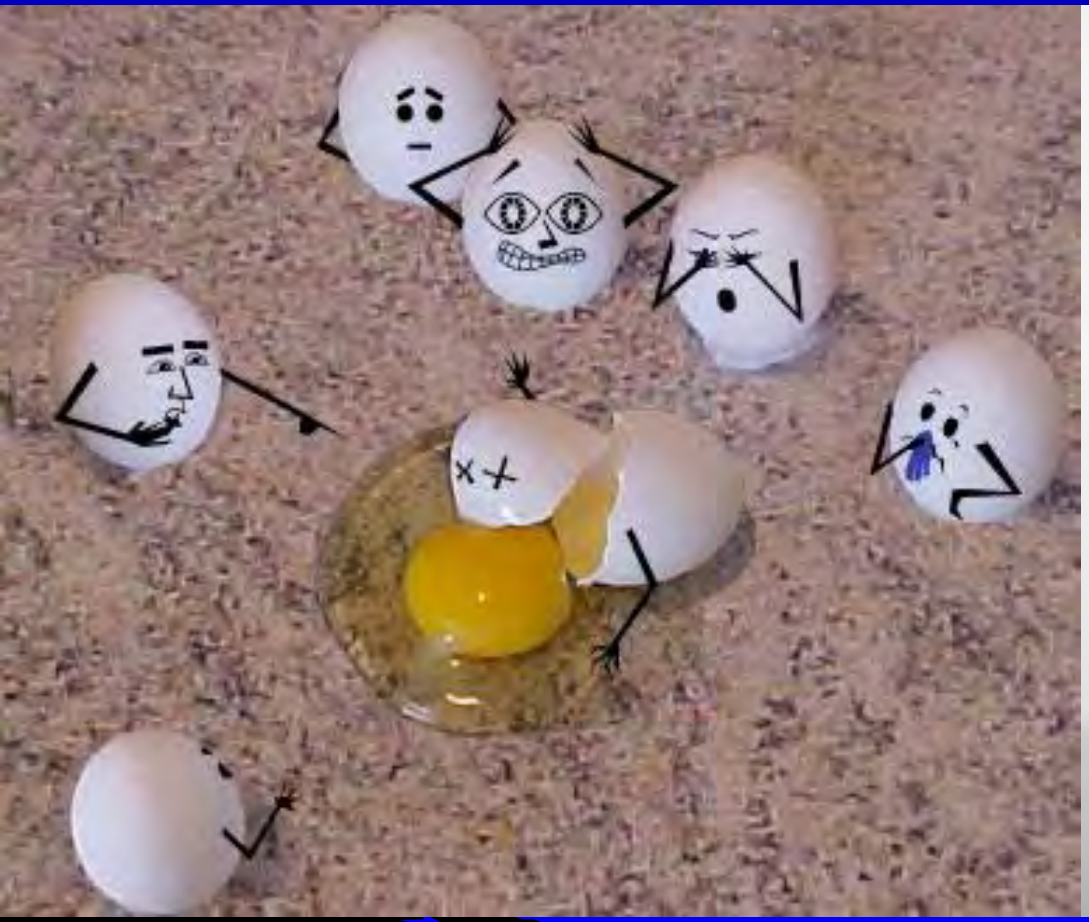
Anthropocene

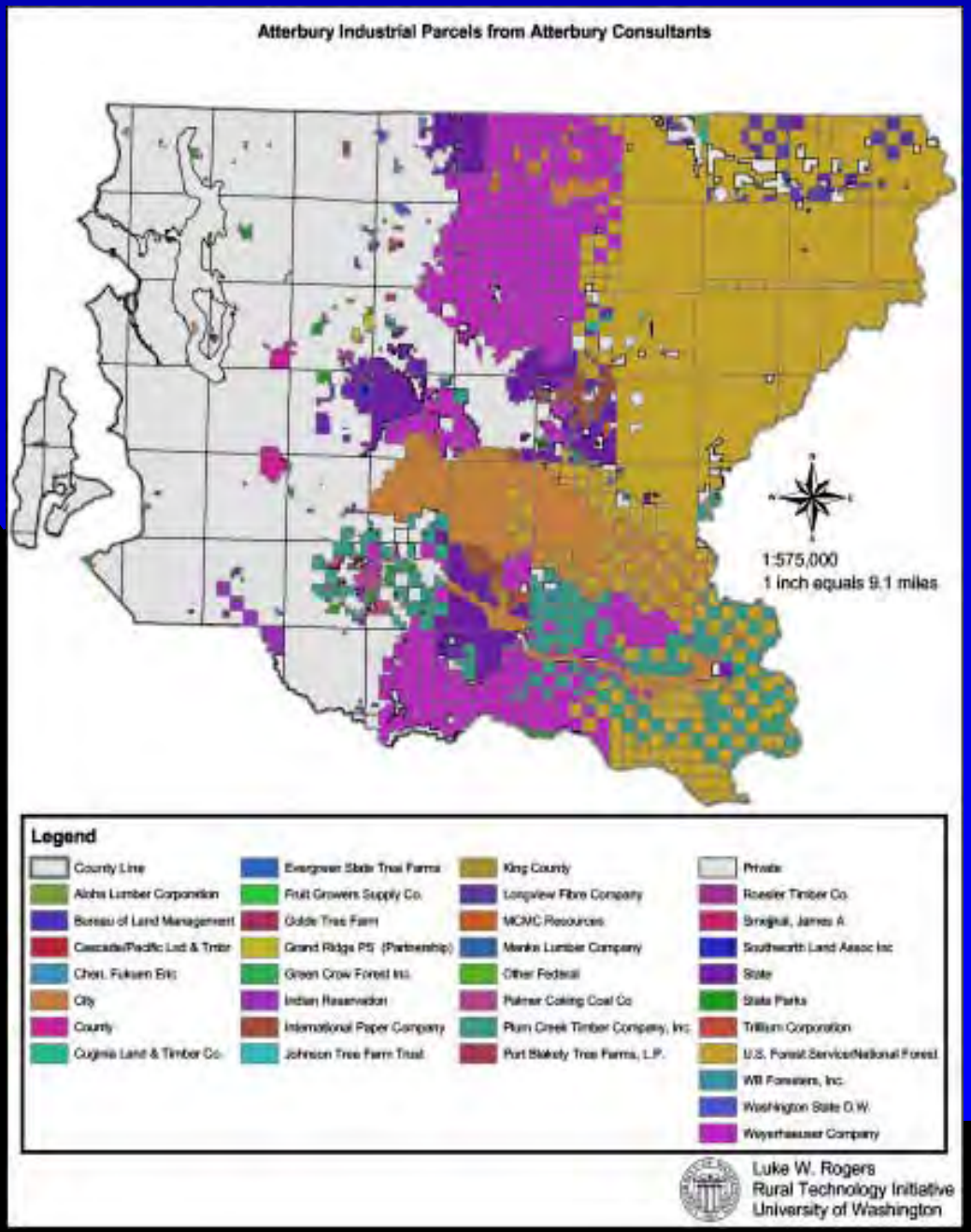
- Notions of land & property
  - Neolithic (technology, farming) ~9,500 BP
- Resource exploitation
  - individualism , concepts of property
  - Reliance on natural capital replaced by a drive to accumulate private capital
- Simplification & compartmentalization

We've Been "Pixelized"

- Confined to property ownership boundaries
- Isolation, fragmentation, compartmentalization in our thinking too
- Amenities gained or lost
- How to keep from falling off the landscape?

Hard To Fix



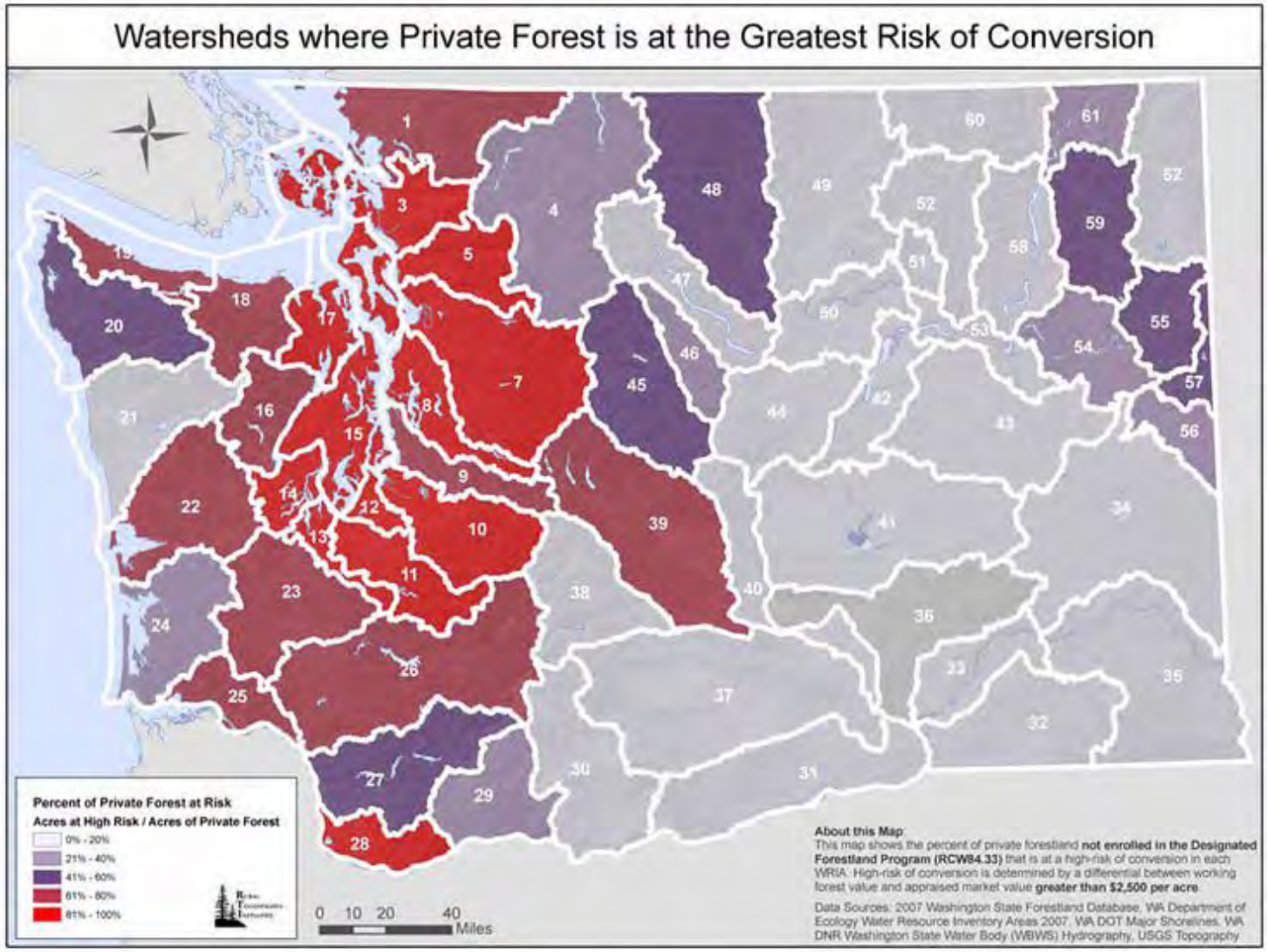


King County, WA

Pixelized

- Property boundaries
- Legal & administrative requirements
- Ecosystem functions
  - Missing lands
  - Disconnected processes
    - F&W Habitat, water
  - Mobility of species
  - Externalities (air, climate)
- Management goals

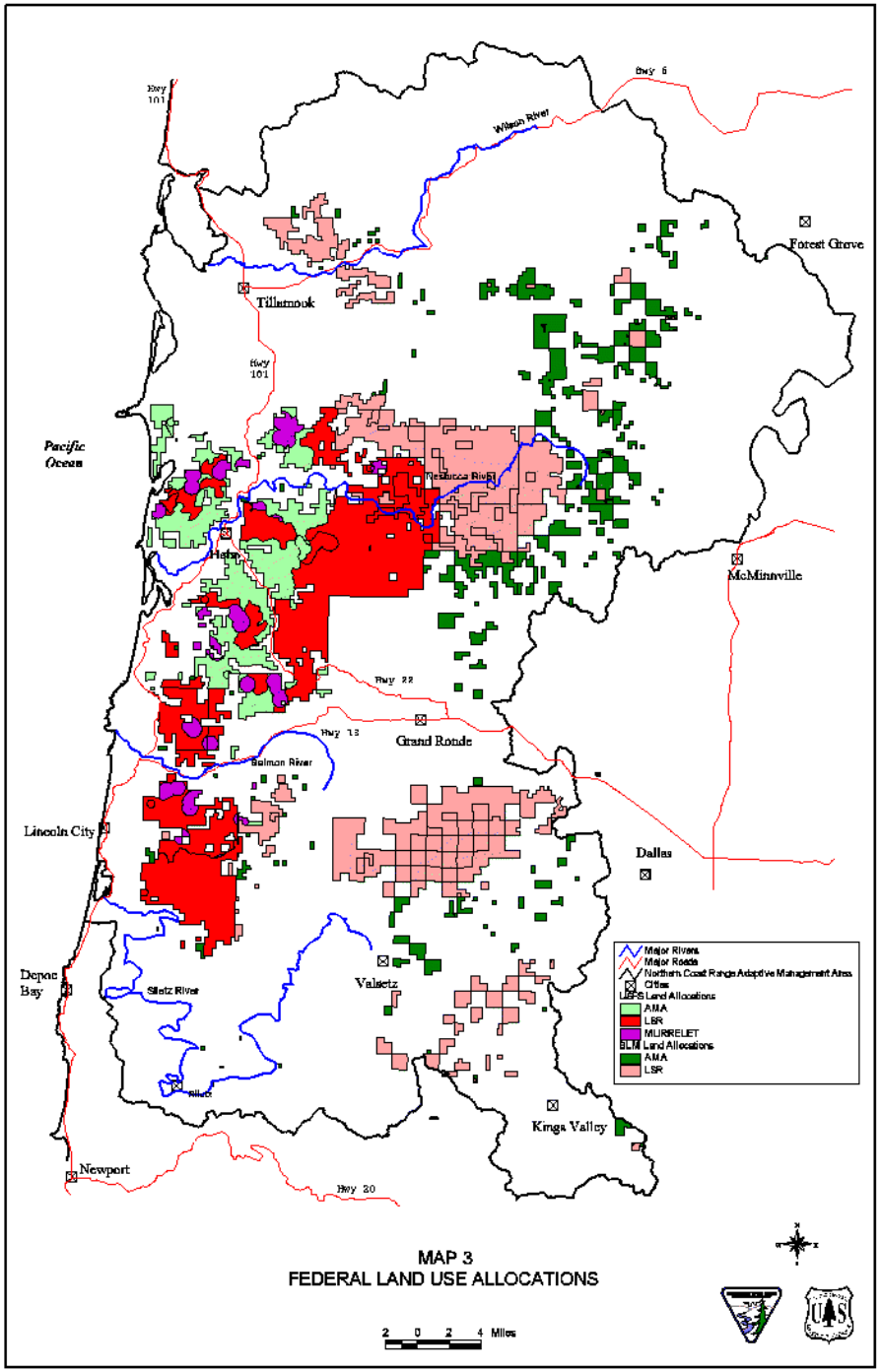
Land Ownership not coincident with Ecosystem Functions e.g. Watersheds



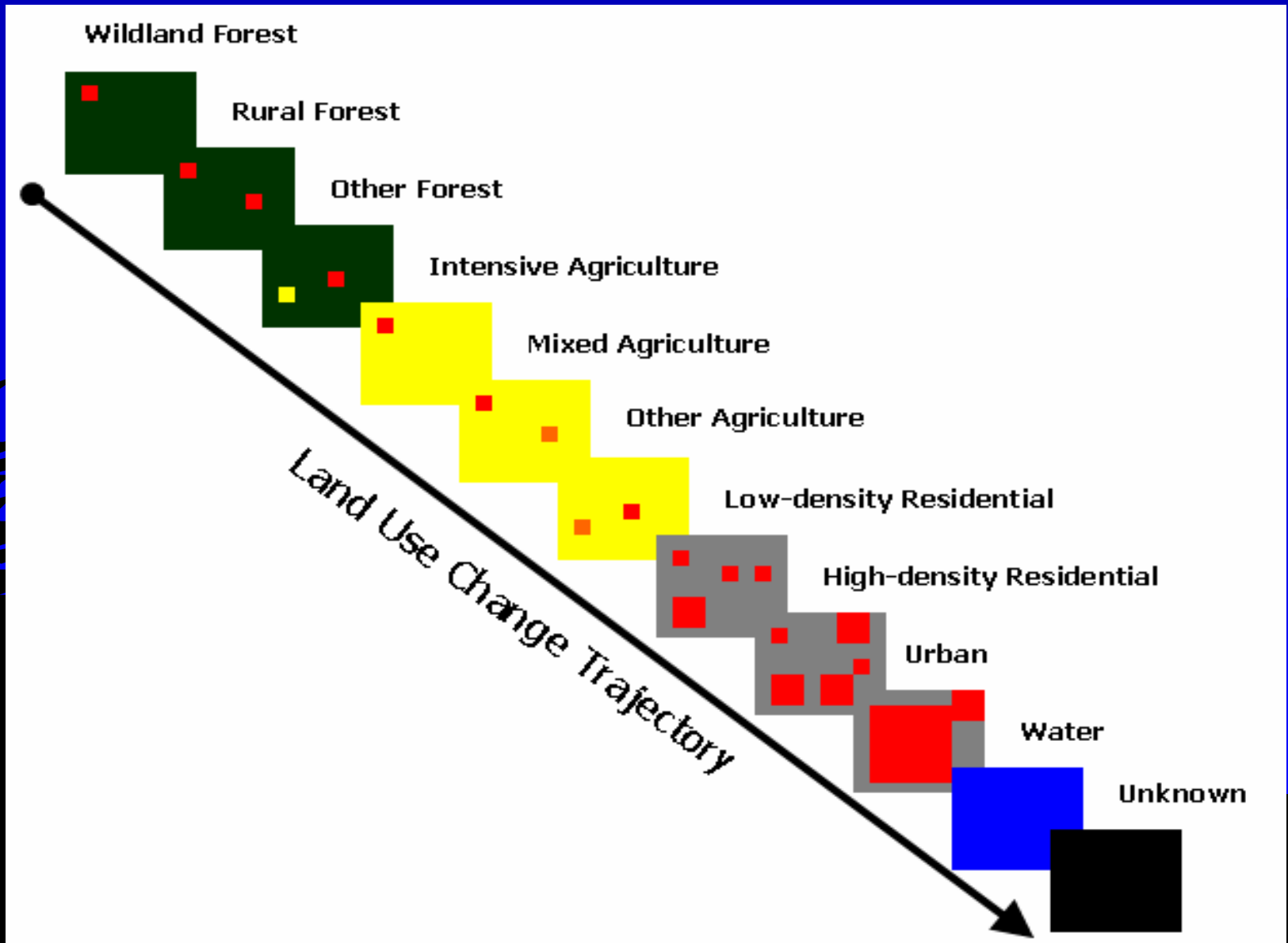
Pixelized Federal Lands

Forest planning has become largely an exercise in land allocation, defining boundaries within National Forests where certain activities are allowed, restricted, or prohibited.

Land allocations under the NW Forest Plan



Forests Are Disappearing



Time to Step Back & Think Things Over

- Myopia and Hubris
- Stop focusing on pixels
- Look at the big picture

What's The Right Goal?

- Should the focus of the Planning Rule be on developing an effective, efficient **rule**?
- Or the capacity to **manage the land and its resources** to efficiently and effectively produce the suite of desired ecosystem services and functions?
  - substantive & procedural guidance for the development of management plans
    - Framework for implementation of projects and actions


Our Forests:
More Than a Bunch of Trees

They Involve Places

And Communities









And Values Held Dear

WHAT do we want from our forests?

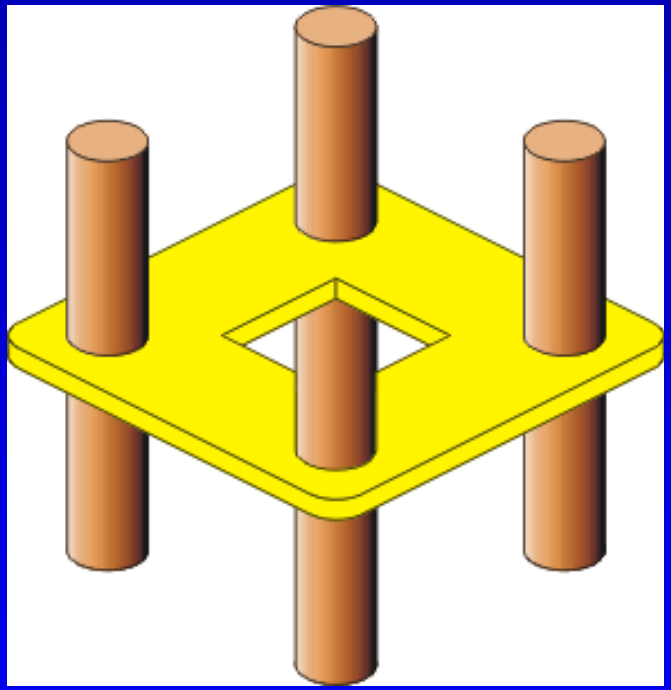
- **Low risk of catastrophic loss**
- **Vibrant, thriving rural communities**
- **Contributions to energy independence and security**

ECONOMIC

- ***Biological diversity and adaptability***
- ***Water & watershed protection***
- ***Habitat for fish, wildlife and flora.***
- ***Viewsheds, access and other amenities for recreation & life style preferences***

ENVIRONMENTAL

We Can’t Get There From Here

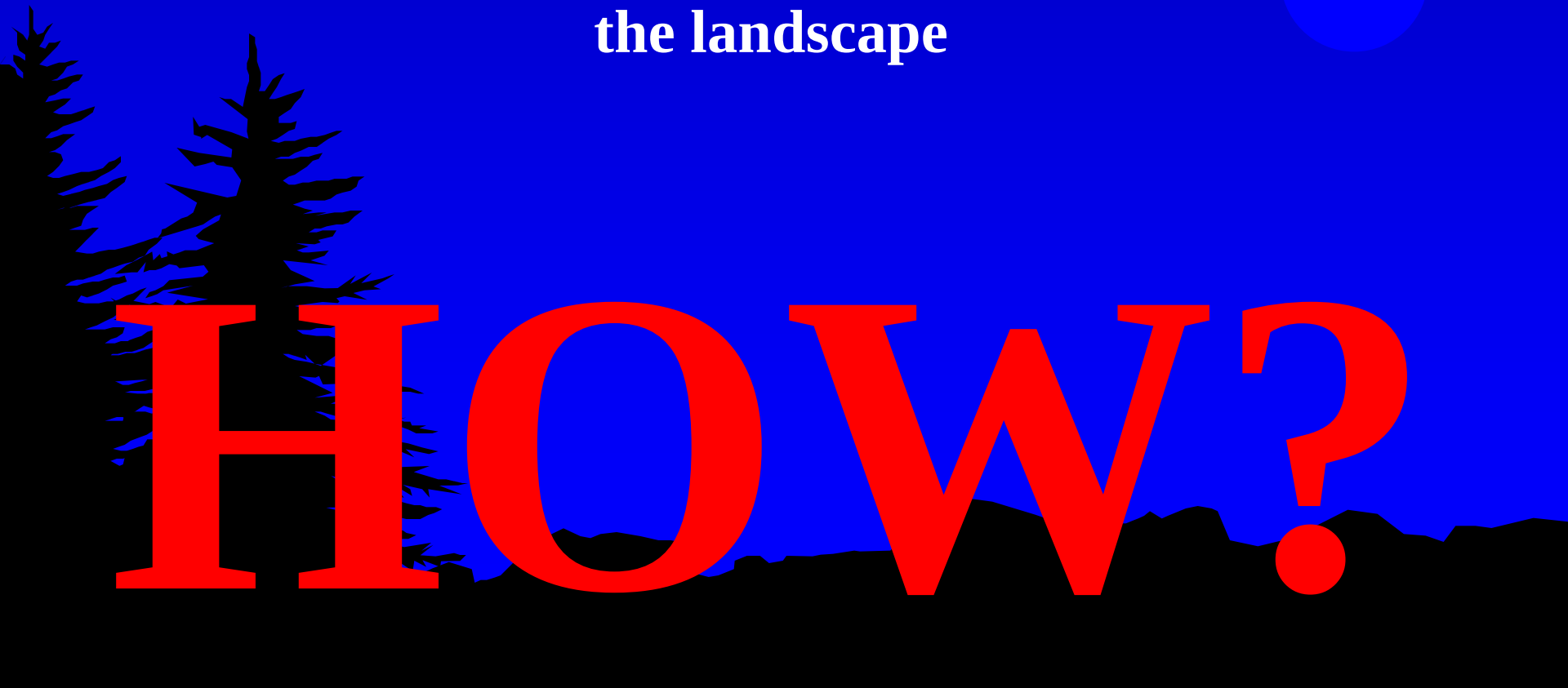


Many of the things we want from our forests can’t be attained if we continue to confine our thinking to administrative, jurisdictional or ownership boundaries

Fish, wildlife, air, water, insects, disease, wildfire don’t recognize these artificial constructs

The BIG question

To deal with diversity and ecological functions, we need to coordinate and integrate management across the landscape



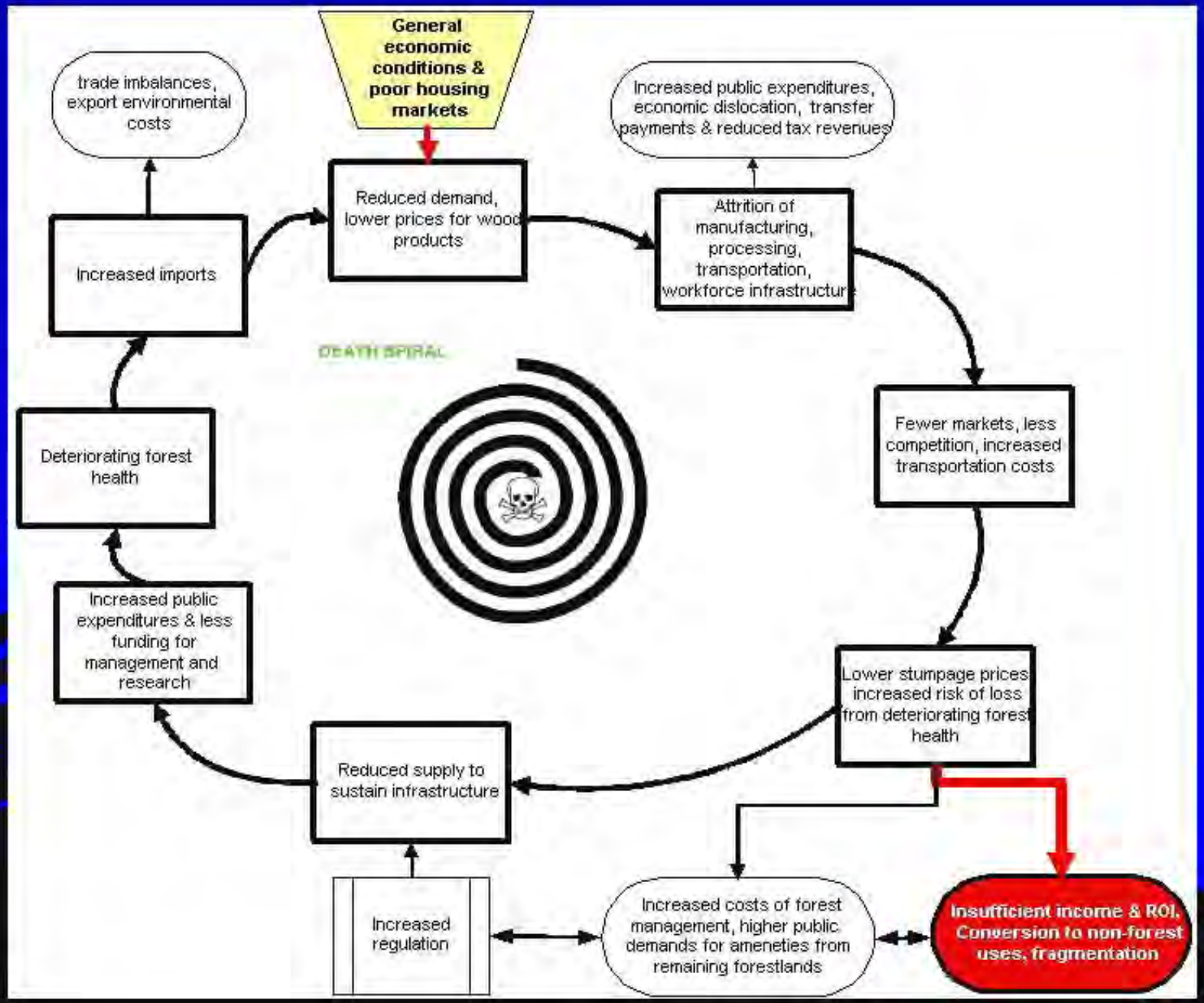
HOW?

Turn Thinking Upside Down

From pixels and boundaries to landscapes, functions, and processes

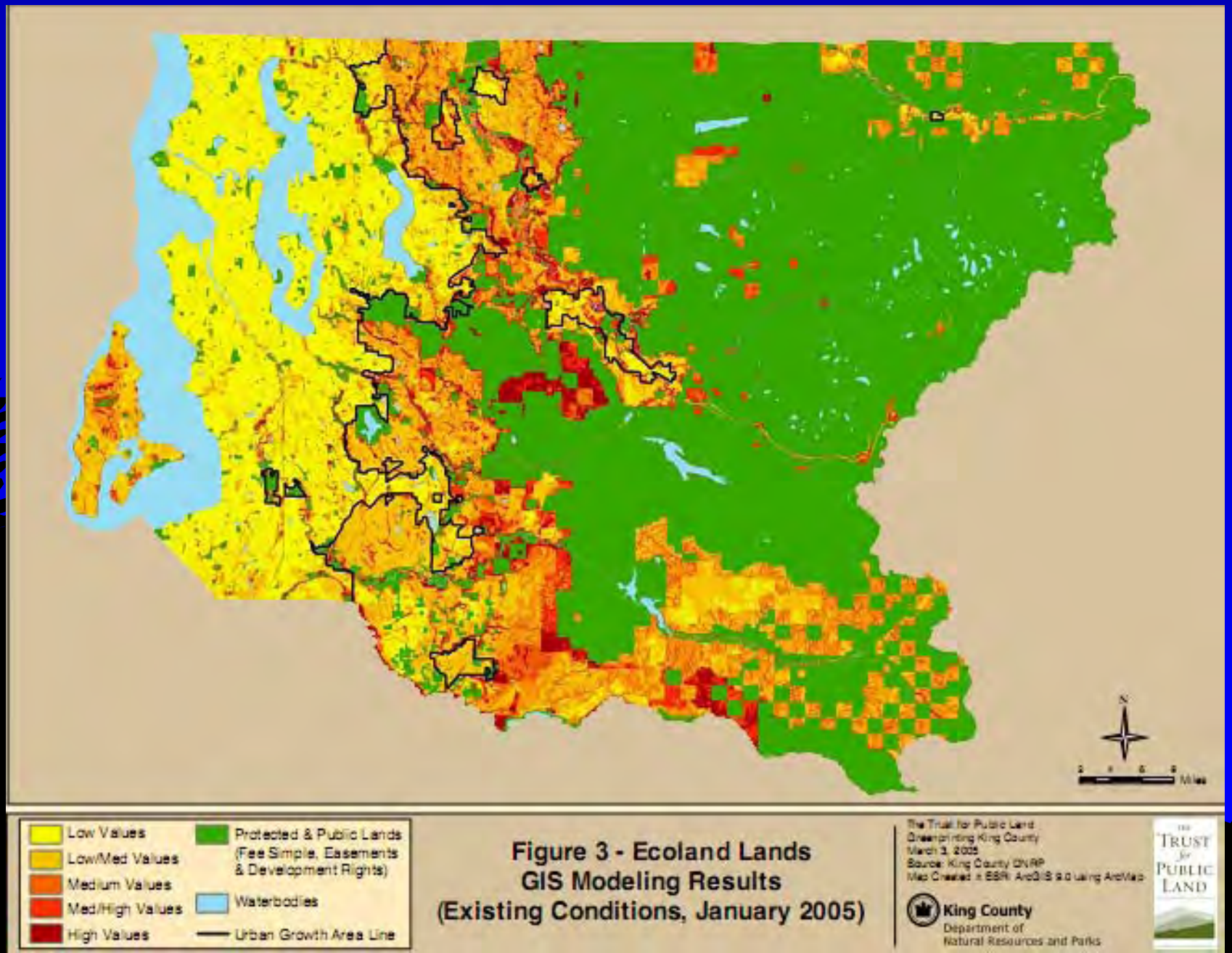
Capacity to Manage for Diversity

- **Species aren't fragile or static**
  - Opportunistic & adaptive
  - Preferred habitat and prey not prerequisits for survival
  - Maintaining species ≠ maintaining desired ecosystem functions
- **Can't be done on FS lands alone**
  - Secretary Vilsack "All Hands, All Lands" approach


General economic conditions & poor housing markets
trade imbalances, export environmental costs
Increased public expenditures, economic dislocation, transfer payments & reduced tax revenues
Reduced demand, lower prices for wood products
Attrition of manufacturing, processing, transportation, workforce infrastructure
Increased imports
DEATH SPIRAL
Fewer markets, less competition, increased transportation costs
Deteriorating forest health
Increased public expenditures & less funding for management and research
Lower stumpage prices increased risk of loss from deteriorating forest health
Reduced supply to sustain infrastructure
Increased regulation
Increased costs of forest management, higher public demands for ameneties from remaining forestlands
Insufficient income & ROI, Conversion to non-forest uses, fragmentation

- Not all forest lands are equal
- Can't expect "**E**verything for **E**verybody, **E**verywhere, **A**ll **T**he **T**ime"
- Need a means to evaluate potential contributions of other lands to advance landscape-scale objectives

King County Greenprinting: Ecological Values



Concept: Use Anchor Forests to Help

- Retain healthy, working forests on the landscape
- Develop and implement strategies to support manufacturing, processing, transportation, and work force infrastructure;
- Restore, maintain, and enhance forest health, ecosystem functions and services; and
- Preserve options to contend with future uncertainties in forest land tenure and climate change.

Communication – Obstacles

(Covello & Sandman "Risk Communication: Evolution & Evolution")

- Uncertainty, incompleteness & complexity
- **Distrust**
- Selective, sensationalist reporting
- Psychological preconceptions
  - Mental shortcuts
  - Preconceptions
- Differences in ideological values that affect perceptions of risk
  - Outrage factors

Challenge

Make conservation attractive, economically, socially, & culturally

- Ecosystem Stations
  - Tools to account for and value natural capital
  - Methods and means to evaluate trade-offs
  - Cooperation
    - Governments, corporations, property owners, communities
    - Incentives and disincentives for behavior

Gretchen Daily, Scientific American April 2010

Interactions (Ezrahi, "Pragmatic Rationalism")

Politicians \ Experts	Agree	Disagree
Agree	Efficient means to end Handsome delegation of authority to experts	Clarify range, foundation, & consequences of disagreement
Disagree	Evaluate efficacy of alternative proposals to accomplish policy objectives	**Biostitution** Little chance for productive role in decision making

Search for Serviceable Truths

- Satisfies tests of scientific acceptability and supports reasoned decision-making
- Does not sacrifice social interests on the altar of *impossible scientific certainty*

New Paradigm

“Panarchy” & Resiliency

- **Social-Ecological Systems** & Stability Dynamics
  - Disturbance & change
- **Attributes**
  - **Resilience –** capacity to absorb disturbance and reorganize to retain the same function, structure, identity, and feedbacks
  - **Adaptability** - ability of organisms and institutions to influence resilience
  - **Transformability –** create new systems when ecological, economic, or social conditions make the old ones untenable

All Lands, All Hands

Vision: Diverse interests work collaboratively to effectuate cooperative management across the landscape

Benefits

- Reduce costs and increase efficiency & effectiveness
- Integrated research
- Overcome distrust

Imagine the possibilities

To Get There

- **Forest Service will have to overcome**
  - Institutional barriers to collaboration
  - Reluctance to devolve decision making
- **Planning Rule**
  - Support social processes of collaboration at the local level

Institutional Considerations Improve Potential For Success

- **Stakeholder involvement (ground up) – influence, not input**
- **Multi-disciplinary science support**
- **Independent facilitation**
- **Communication**
  - Articulate needs & visions
  - Share experience, practical know-how, & lessons
  - Effect changes in policy & law

Future

OLD	NEW
Species preservation	Precariousness, Vulnerability, Resistance, Robustness & Response Diversity
Static conservation	Dynamic conservation that accommodates disturbance and change
Restoration & Desired States	Panarchy and “Safe” Boundaries (Holling; Rockstrom et.al.) Multiple ecologically stable states
Biological Species Diversity within jurisdictional boundaries	Social Ecological System s & Resiliency Analysis
Agency control	Adaptive Co-Management & Governance Systems, Devolution of authority and responsibility

Stuff to Ponder

We need to replace our pixelized window on the world with a landscape view of social & ecological realities.

The Web of Life

All things are connected. We are part of the Earth and it is part of us

The air is precious to the red man for all things share the same breath the beast, the tree, the man.

The Earth does not belong to man, man belongs to the Earth.

Man did not weave the web of life, he is merely a strand in it.